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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

July 26, 2000

Ms. Magalie R. Salas
Secretary
Federal Communications Commission
445 12th Street, S.W.
Room RW-B204
Washington, D.C. 20554

Re: *Ex Parte* filing of Sirius in ET Docket No. 98-42
Our Ref.: 07330-008001

BOSTON
DALLAS
DELAWARE
NEW YORK
SAN DIEGO
SILICON VALLEY
TWIN CITIES
WASHINGTON, DC

Dear: Ms. Salas:

This is in response to the comments of Sirius Satellite Radio Inc. submitted on May 25, 2000 and June 23, 2000 in the above-referenced proceeding.

Sirius' May 25, 2000 submittal includes a study that purports to analyze interference from RF lighting devices to satellite digital audio radio service ("satellite DARS"). The study concludes that interference to satellite DARS receivers from out-of-band emissions of RF lighting devices at current and proposed field strength levels will be intolerable. Sirius, therefore, advocates tighter RF emission limits to protect Sirius receivers. In its summary and conclusions, Sirius identifies three methods to avoid interference:

1. Limit RF lighting to 1.8 μV/m;

2. Separate RF lighting devices from DARS receivers by at least 571 meters assuming that a non-consumer out-of-band emission limit of 100 μV/m @ 30 m is adopted for RF lighting; or

3. Establish an RF lighting in-band maximum of 325 μV/m @ 30 m with an assumed 45 dB spectrum roll off.

Sirius' submittal, filed almost two years after the comment deadline, is littered with flawed arguments and technical analyses. Sirius arbitrarily singles out RF lighting for discriminatory treatment and suggests three unfair and unworkable alternatives that should be disregarded by the Commission.

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Discussion

As a threshold matter, the Commission's Notice of Proposed Rulemaking[1] ("NRPM") established an initial comment deadline of July 8, 1998, with reply comments due on August 24, 1998.[2] Thus, Sirius' purported study is late-filed by almost two years and should be disregarded as untimely and prejudicial to the other parties in this proceeding.[3]

Moreover, the purported study appears to be more of a patchwork of data rather than a coherent engineering analysis. Sirius selectively and inappropriately utilizes data from various sources, including a March 1994 NTIA report, Fusion's May 19, 1999 *ex parte* filing and Eastman Kodak's February 4, 2000 *ex parte* filing and applies such data wholly out of context to support its views. For example, Sirius calculates an RF lighting roll-off that is derived from peak data measurements submitted by Fusion in its May 19, 1999 *ex parte* filing. Such data, however, was submitted solely for center band analysis, was not precisely measured at the band edges and was taken at an unshielded industrial location. The use of such data to extrapolate a roll-off is highly misleading.[4]

Sirius' proposal to limit out-of-band emissions to 1.8 μV/m @ 30 m would place limits on RF lighting that do not apply to any other RF devices and which are below the noise floor in many urban environments. Sirius' proposed standard must be contrasted with the following limits that currently apply in the DARS band:

Class A limits for ITE - U.S. and International	100 μV/m
Class B limits for ITE - U.S. and International	50 μV/m
ISM Microwave Ovens - U.S.	250 μV/m
ISM Microwave Ovens - International	316 μV/m
RF Lighting - International	316 μV/m

[1] NPRM, ET Docket No. 98-42 (April 1, 1998).
[2] Order, ET Docket No. 98-42 (July 31, 1998).
[3] Under 47 CFR § 1.415(b), a "reasonable time will be provided for submission of comments in support of or in opposition to proposed rules, and the time provided will be specified in the notice of proposed rulemaking." Also, a "reasonable time will be provided for filing comments in reply to the original comments. . ." See 47 CFR § 1.415(c). However, "no additional comments may be filed unless specifically requested or authorized by the Commission." 47 CFR § 1.415(d). Sirius' study is completely different in kind from its original comments and reply comments. Allowing the purported study filed almost two years after the comment deadline, disguised as an *ex parte* filing, runs counter to the clear language and purpose of the Commission's rules.
[4] For example, Sirius refers to Fusion's May 19, 1999 *ex parte* filing in figure 5 that shows a lamp with a switching power supply, at 2397 MHz that is 59 dB below the peak emitted signal level. Sirius fails to notice that figure 11 shows the same signal level at 2397 MHz with **the lamp turned off**. Thus, caution must be exercised in attempting to extrapolate Fusion's data to draw conclusions concerning RF lighting's potential for interference outside of the ISM band.

In effect, Sirius wants 2.45 GHz RF lighting to operate at lower out-of-band emission levels than those recognized anywhere in the world for any other type of RF equipment. Its proposal selectively discriminates against RF lighting by requiring field strength limits that are below all internationally recognized baselines. As the Commission is well aware, the Class A and B digital device "baselines" are the worldwide harmonized limits that apply to both intentional and unintentional out-of-band emissions, both indoor and outdoor. Law or policy cannot justify singling out RF lighting for tighter limits; thus, Sirius' proposal must be rejected as an arbitrary limit on RF lighting devices.

Sirius contends that distinguishing between RF lighting and other RF devices to establish emission standards is appropriate due to differences in operating characteristics. For instance, the company points to microwave ovens as devices with pulsed signals where "maximum signal levels will be present infrequently and for short periods of time" and are further mitigated by indoor use. Thus, Sirius believes that ovens are not significant sources of interference. The company's own data, however, belies this conclusion. According to Sirius' calculations, the "necessary separation distance" for microwave ovens is 1713.4 meters. This is nearly one mile or three times greater than the separation Sirius claims it needs for non-consumer RF lighting and nearly six times that it claims it needs for consumer RF lighting.

At these distances, however, the thousands of individual microwave ovens in the vicinity of Sirius receivers will not appear to such receivers as periodic operating point sources; rather, their emissions will appear as continuous emission background noise, similar to what the NTIA discovered in its 1995 study of oven emissions in the Denver metropolitan area.[5]

Sirius also ignores other continuously operating RF devices designed specifically for outdoor use. For example, Metricom, Inc. has announced the deployment of its 2.45 GHz spread spectrum "Ricochet" mobile data network system in over 45 cities nationwide.[6] Ricochet's microcell radios will be mounted to streetlights and utility poles every quarter to half mile in a checkerboard pattern to provide high-density networks for its indoor and outdoor mobile Internet customers. Sirius should examine potential interference from these devices before it singles out RF lighting for discriminatory treatment.

More significantly, however, Sirius totally ignores the scores of residentially and commercially deployed microprocessors that populate every facet of society, which constantly bombard large segments of the radio spectrum with emissions that are

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[5] *See* NTIA Report 95-323, *Measurements to Characterize Aggregate Signal Emissions in the 2400-2500 MHz Frequency Range.*

[6] *See* www.metricom.com/ricochet_advantage.

successfully contained by the Class A and B limits. [7] As processor speeds increase, these sources will increasingly emit in the 2 GHz range. The inescapable conclusion is that Sirius singles out RF lighting only because it is not yet on the market in large quantities and is thus, a vulnerable target. If Sirius' data is correct, however, it could face much larger problems with the emerging wireless LAN services and the installed base of more than 100 million microwave ovens than it even will from RF lighting.

Sirius' alternative proposal to limit the physical proximity of RF lighting devices to a 571 meter minimum distance from its receivers lacks feasibility and defies common sense. Plausible attempts to implement and monitor such a standard would require undue reporting burdens on DARS and Fusion as well as costly Commission oversight and must be rejected.

Sirius' third alternative to establish in-band limits on RF lighting runs counter to ITU treaty provisions and would represent an unprecedented unilateral encroachment by the U.S. on ISM bands that are internationally harmonized. As explained in earlier Fusion comments, ITU Radio Regulations give ISM express priority over all in-band radio services and U.S. regulations must conform to these treaty requirements. Sirius' third recommendation, therefore, must also be rejected.

In urging adoption of new standards, Sirius makes several flawed legal arguments in its June 23, 2000 letter that should not go unchallenged. Sirius suggests that, other than its comments concerning out-of-band interference, there is no evidence in the record that RF lighting can operate without imposing harmful interference on the operations of satellite DARS providers. Accordingly, Sirius argues that the Commission cannot go forward with a report and order that could harm satellite DARS operations.

Sirius fails to recognize that RF lighting lawfully operates in the ISM band pursuant to current Part 18 regulations. As a result, Sirius misstates or misunderstands the parties' burdens in this proceeding. The Commission's goals in the NPRM were to develop certain line-conducted emission limits and out-of-band radiated limits above 1 GHz for RF lighting. The NPRM was initiated pursuant to the Commission's authority under the Communications Act of 1934 and in accordance with § 556 of the Administrative Procedure Act. In this regard, § 556(d), states "except as otherwise provided by statute, the proponent of a rule or order has the burden of proof." In proposing new standards not presently under consideration, Sirius has the burden of producing evidence sufficient to support its request for new rules, and the

[7] *See* findings in Commission Order issued on July 14, 2000, FCC 00-29 in para. 9, rejecting arguments to create special limits on radiated emissions in the GPS spectrum because the limits "currently applied to millions of other unlicensed devices, such as personal computers ... have already been proved successful in controlling interference."

Commission may reject the adoption of newly proposed rules where such purported evidence is based on flawed data and technical analysis. Ultimately, Sirius has not put forth any credible evidence demonstrating a need to adopt new standards and its proposals must be rejected.

For the reasons stated above, Sirius' proposed alternatives for protecting the DARS bands from RF lighting emissions must be rejected by the Commission.

Very truly yours,

Terry G. Mahn

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